Differential and Integral Calculus (MTH 103)

PAU Undergraduate Programme

School of Science and Technology

Assignment on Limit

Evaluate the following limits

1. $\lim_{x\to 8}\dfrac{2x^2-17x+8}{8-x}$

2. $\lim_{x\to \infty}\dfrac{2x^3-5x^2+1}{x-3-x^3}$

3. $\lim_{x\to 7}\dfrac{x^2-4x-21}{3x^2-17x-28}$

4. $\lim_{x\to 2}\dfrac{x^3-8}{x^2-4}$

5. $\lim_{x\to 0}\left[\left(2x+\dfrac{1}{x}\right)^2-\left(\dfrac{1}{x}-3x\right)^2\right]$

6. $\lim_{x\to 0}\dfrac{(6+x)^2-36}{x}$

7. $\lim_{x\to \pi/6}\dfrac{\sin 2x}{\sin x\tan x}$

8. $\lim_{x\to 0}\dfrac{x}{\sqrt{1-\cos x}}$

9. $\lim_{x\to 4}\dfrac{\sqrt{x}-2}{x-4}$

10. $\lim_{x\to \infty}\left(\dfrac{x^2+x+1}{x+1}-\dfrac{2x^2+1}{2x+1}\right)$

11. $\lim_{x\to -3}\dfrac{\sqrt{2x+22}-4}{x+3}$

12. $\lim_{x\to 0}\dfrac{x}{3-\sqrt{x+9}}$

13. $\lim_{x\to 0}\left(\frac{2x^2-3x+4}{x}+\frac{5x-4}{x}\right)$

14. $\lim_{x\to\ 0}\frac{\sin 3x}{\sin 5x}$

15. $\lim_{x\to\ \pi}\frac{\sqrt{1-\tan x}-\sqrt{1+\tan x}}{\sin 2x}$